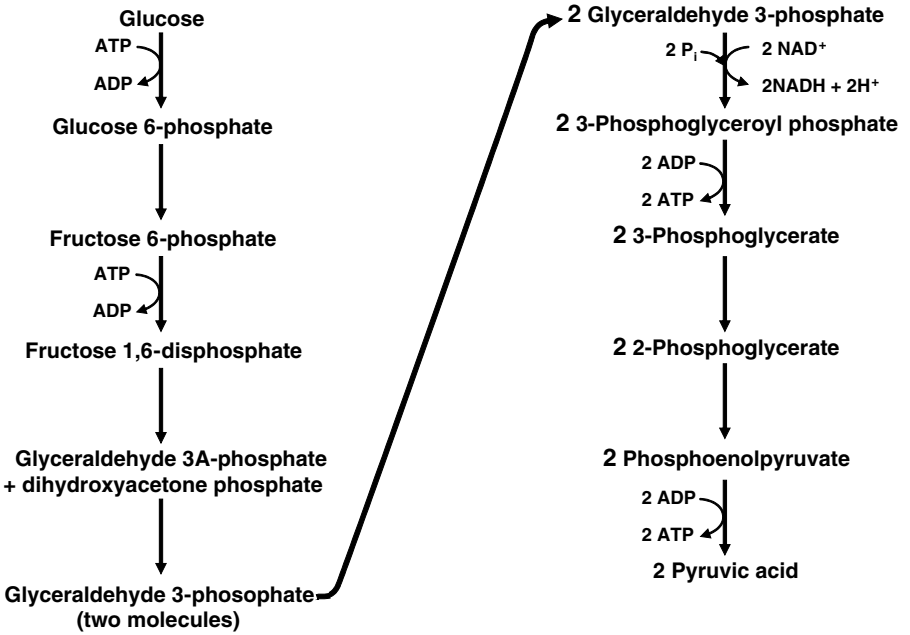

Figure 3.10. The complete Embden-Meyerhof pathway of glycolysis. The reactions in the left-hand column are often characterized as *preliminary*, transferring energy from ATP to products of glucose and splitting the molecule into two molecules of glyceraldehyde-3-phosphate. The reactions in the left-hand column involve the oxidation step and the subsequent transfer of energy to ATP.

dihydroxyacetone phosphate, that was reduced (took up two hydrogen atoms, making NADH + H^+) in conjunction with the oxidation of glyceraldehyde 3-phosphate (Meyerhof, Ohlmeyer, & Möhle, 1938).[39] NADH thus took over the role of glycerophosphoric acid in Embden's scheme, serving as the hydrogen donor in the reduction of pyruvic acid to lactic acid in muscle glycolysis and to alcohol in alcoholic fermentation.

With this final contribution of Meyerhof, what is known as the Embden-Meyerhof pathway (sometimes the Embden-Parnas-Meyerhof pathway) achieved its mature form as shown in Figure 3.10. The reactions from glucose

phosphate radical that is found in *triphosphopyridine nucleotide (TPN)*, also known as *coenzyme II*. The modern terms *nicotinamide adenine dinucleotide (NAD)* and *nicotinamide adenine dinucleotide phosphate (NADP)* were adopted as part of an international agreement in the 1960s (see Afzelius, 1966, p. 12, fn).

[39] Only one hydrogen atom is actually added to NAD^+; the second dissociates into H^+ and an electron, with the electron being incorporated along with the hydrogen atom into NADH.